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| 10/622,454 | 07/21/2003 | Hiroaki Furuya | 240510US2TTC | 5246 |
| 22850 | 7590 | 10/15/2008 | | |
| OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314 | | | | |
| EXAMINER | | | | |
| AHMED, SHAMIM | | | | |
| ART UNIT | | PAPER NUMBER | | |
| 1792 | | | | |
| NOTIFICATION DATE | | DELIVERY MODE | | |
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary**Application No.**

10/622,454

Applicant(s)

FURUYA, HIROAKI

Examiner

Shamim Ahmed

Art Unit

1792

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 June 2008.
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1, 2, 4 and 5 is/are pending in the application.
4a) Of the above claim(s) 4 is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 1, 2 and 5 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-893)
4) ☐ Interview Summary (PTO-413)
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____
Paper No(s)/Mail Date _____

DETAILED ACTION

Response to Arguments

1. Applicant's arguments with respect to claims 1-3 and 5 have been considered but are not persuasive because the scope of claim 5 is now changes that the temperature of the first etching solution is higher than that of the second etching solution and for at least this reason a new ground(s) of rejection is applied below.

It is noted that the cited references may silent regarding the quantitative etching ratio between the first and second etching solution but it would have been obvious to one of ordinary skilled in the art at the time of claimed invention to optimize the operating temperature to achieve the claimed etching ratio as the temperature is result-effective variable as discussed in the earlier office action.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-2 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Spierings et al (6,045,715) in view of Niwayama (JP-09027469A) and further in view of Rath et al (6,254,796).

Spierings et al disclose a process of chemically etching a glass substrate, which is used for liquid crystal display (LCP) device, which reads on claimed glass substrate

and the term "used for" is considered to be an intended use of the glass substrate (abstract).

Spierings et al teach that the glass substrate is flattened (less rough surface) by removing pits or cracks under different circumstances such as stronger etchant and weaker etchant can be used with two different etching rates (col.3, lines 10-col.4, lines 30).

Spierings et al do not teach that the chemical treatment is performed by using two sequential steps namely first and second etching with first and second solution in first and second etching process machines, respectively.

However, Niwayama teach an etching process including the step of utilizing two different etching baths with two different etchant for having an etched surface with reduced foreign material on the substrate surface (see the abstract).

Therefore, it would have been obvious to one of ordinary skilled in the art at the time of claimed invention to modify Spierings et al's process by splitting the single step into the two sequential steps for efficiently removing contaminants or to achieve an improved etched substrate with reduced foreign materials on the substrate surface as taught by Niwayama.

Modified Spierings et al may not teach the temperature of the first etchant is higher than that of the second etchant solution for providing the claimed etching ratio.

However, Rath et al teach in the manufacturing of microelectronic component, increasing the temperature of the etchant increases the etching rate of glass material, wherein the etchant is HF (see col.3, lines 10-39).

However, it would have been obvious to one of ordinary skilled in the art at the time of claimed invention to modify Spierings et al's process with Rath et al's teaching of increasing the etching rate by increasing the etching temperature during the removing of pits or cracks for reducing the processing time as suggested by Rath et al.

Furthermore, it is typical to remove or etch the rough surface faster in the initial stage and slow down at the end as the etching progress because at the end of the process smoother surfaces is produced and accepted not to remove or etch faster in the end of the etching or removing process.

Conclusion

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Fukada et al (5,736,061) teach that cracks in a glass surface are removed by etching with HF at room temperature and the temperature can be varied to achieve desired smoothness on the glass surface 9col.5, lines 48-col.6, and lines 51).

5. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the

shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shamim Ahmed whose telephone number is (571) 272-1457. The examiner can normally be reached on Tu-Fri (12:30-10:30) Every Monday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nadine G. Norton can be reached on (571) 272-1465. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Shamim Ahmed/

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Primary Examiner, Art Unit 1792

SA
October 9, 2008